WHAT IS CLAIMED IS:

1. A redeye reduction system for a digital image including at least one redeye region, said system comprising:

a first matrix generating module for cycling through pixels of said digital image and comparing a color-based parameter of each of said pixels to a first threshold value, assigning a first logic level to pixels whose color-based parameter is not less than said first threshold value and a second logic level to pixels whose color-based parameter is less than said first threshold value, pixels assigned with said first logic level being defined as candidate pixels and pixels not assigned with said first logic level being defined as non-candidate pixels;

a component-connecting module coupled to said first matrix generating module for identifying a plurality of cohesive groups of candidate pixels, and for identifying a first target cohesive group among said plurality of cohesive groups within which lies the candidate pixel having the color-based parameter of highest value among all of said plurality of cohesive groups, said first target cohesive group defining a first redeye region;

an image modifying module coupled to said component-connecting module and having access to said digital image, said image modifying module being effective for identifying first image pixels within said digital image corresponding to said first target cohesive group, and for changing the color of said first image pixels to a common predetermined color.

2. The redeye reduction system of claim 1, further including a candidate-erosion module coupled between said first matrix generating module and said component-connecting module, said candidate-erosion module having a first state of operation in which candidate pixels having less than three neighboring candidate pixels are converted to non-candidate pixels.

3. The redeye reduction system of claim 2, wherein said candidate-erosion module further has a second stage of operation following said first stage of operation in

which candidate pixels having less than two neighboring candidate pixels are converted to non-candidate pixels.

4. The redeye reduction system of claim 2, wherein said candidate-erosion module converts a candidate pixel to a non-candidate pixel by reassigning it with said second logic level.

5. The redeye reduction system of claim 1, wherein said component-connecting module further generates statistical data for each of said plurality of cohesive groups including a high parameter value indicating the highest color-based parameter value of its corresponding candidate pixels, an average parameter value indicating the average color-based parameter value of its corresponding candidate pixels, and a size parameter value indicating its size.

6. The redeye reduction system of claim 5, further including a second-target-determining module coupled to said component-connecting module for identifying candidate cohesive groups among said plurality of cohesive groups characterized by having an average parameter value within a first range dependent on the average parameter value of said first target cohesive group and by having a size parameter value within a second range dependent on the size parameter value of said first target cohesive group,

wherein said second-target-determining modules determines that no second redeye region exists if no candidate cohesive groups are identified.

7. The redeye reduction system of claim 6, wherein said first value range is defined as 0.5 to 1.5 of the average parameter value of said first target cohesive group.

8. The redeye reduction system of claim 6, wherein said second value range is defined as 0.5 to 1.5 of the size parameter value of said first target cohesive group.

9. The redeye reduction system of claim 6, wherein said second-target-determining module further calculates the boundary square population value of

each candidate cohesive group and identifies as a second target cohesive group the candidate cohesive group having the largest boundary square population value, said second target cohesive group defining a second redeye region.

10. The redeye reduction system of claim 9, wherein said image modifying module is further effective for identifying second image pixels within said digital image corresponding to said second target cohesive group, and changing the color of said second image pixels to said common predetermined color.

11. The redeye reduction system of claim 1, further including a boundary-adjusting module coupled between said component-connecting module and said image modifying module, said boundary-adjusting module dilating out said first target cohesive group a predetermined number of times to encompass surrounding non-candidate pixels, and comparing the color-based parameter of said encompassed non-candidate pixels to a second threshold value less than said first threshold value, all encompassed non-candidate pixels having a color-based parameter not less than said second threshold value being reassigned said first logic level and converted to candidate pixels.

12. The redeye reduction system of claim 11, wherein said first target cohesive group is dilated twice.

13. The redeye reduction system of claim 11, wherein said second threshold value is 0.9994 times said first threshold value.

14. The redeye reduction system of claim 1, further including:

a second matrix generating module for cycling through said pixels of said digital image and comparing said color-based parameter of each of said pixels to a second threshold value less than said first threshold value, assigning said first logic level to pixels whose color-based parameter is not less than said second threshold value, and assigning said second logic level to pixels whose color-based parameter is

less than said second threshold value, wherein said first logic level is a logic high and said second logic level is a logic low; and

a boundary-adjusting module coupled between said component-connecting module and said image modifying module, said boundary-adjusting module dilating out said first target cohesive group a predetermined number of times to encompass surrounding non-candidate pixels, converting all encompassed non-candidate pixels to candidate pixels by reassigning them with said first logic level, correlating the dilated first target cohesive group to corresponding pixels generated by said second matrix generating module, and redefining said first target cohesive group as the logical AND of each pixel within said dilated first target cohesive group with its corresponding pixel generated by said second matrix generating module.

15. The redeye reduction system of claim 14, wherein said first target cohesive group is dilated twice.

16. The redeye reduction system of claim 14, wherein said second threshold value is 0.9994 times said first threshold value.

17. The redeye reduction system of claim 1, wherein said predefined color has a first brightness intensity, and wherein said image modifying module is further effective for changing the pixels of said digital image bordering said first image pixels to said common color and having a common second brightness intensity lower than said first brightness intensity.

18. The redeye reduction system of claim 1, wherein said first threshold value is defined as $Cr_{avg} + 0.2*(CR_{max}-Cr_{min})$ after the Red, Green, and Blue values of all pixels have been raised to the 1/3 power.

19. A redeye reduction system for a digital image including at least one redeye region, said system comprising:

a first matrix generating module for cycling through pixels of said digital image and comparing a color-based parameter of each of said pixels to a first

threshold value, assigning a first logic level to pixels whose color-based parameter is not less than said first threshold value and a second logic level to pixels whose color-based parameter is less than said first threshold value, pixels assigned with said first logic level being defined a candidate pixels and pixels not assigned with said first logic level being defined as a non-candidate pixels;

a component-connecting module coupled to said first matrix generating module for identifying a plurality of cohesive groups of candidate pixels, and for generating statistical data for each of said plurality of cohesive groups including a high parameter value indicating the highest color-based parameter value of its corresponding candidate pixels, an average parameter value indicating the average color-based parameter value of its corresponding candidate pixels, and a size parameter value indicating its size;

a first target-determining module coupled to said component-connecting module for identifying a first target cohesive group among said plurality of cohesive groups characterized as having the high parameter value of greatest magnitude, said first target cohesive group defining a first redeye region;

a second target-determining module coupled to said component-connecting module and effective for identifying candidate cohesive groups among said plurality of cohesive groups characterized by having an average parameter value within a first range dependent on the average parameter value of said first target cohesive group and by having a size parameter value within a second range dependent on the size parameter value of said first target cohesive group, and further effective for calculating the boundary square population value of each candidate cohesive group and identifying as a second target cohesive group the candidate cohesive group having the largest boundary square population value, said second target-determining module identifying no second redeye region if no candidate cohesive groups are identified and otherwise identifying said second target cohesive group as a second redeye region;

an image modifying module coupled to said first and second target-determining modules and having access to said digital image, said image modifying module being effective for identifying first image pixels within said digital image

corresponding to said first target cohesive group and for changing the color of said first image pixels to a common predetermined color, and further effective for identifying second image pixels within said digital image corresponding to said second target cohesive group in response to said second target-determining module identifying a second redeye region, and for changing the color of said second image pixels to said common predetermined color.

20. The redeye reduction system of claim 19, wherein said first value range is defined as 0.5 to 1.5 of the average parameter value of said first target cohesive group.

21. The redeye reduction system of claim 19, wherein said second value range is defined as 0.5 to 1.5 of the size parameter value of said first target cohesive group.

22. The redeye reduction system of claim 19, further including a candidate-erosion module coupled between said first matrix generating module and said component-connecting module, said candidate-erosion module having a first state of operation in which candidate pixels having less than three neighboring candidate pixels are converted to non-candidate pixels.

23. The redeye reduction system of claim 22, wherein said candidate-erosion module further has a second stage of operation following said first stage of operation in which candidate pixels having less than two neighboring candidate pixels are converted to non-candidate pixels.

24. The redeye reduction system of claim 23, wherein said candidate-erosion module converts a candidate pixel to a non-candidate pixel by reassigning it with said second logic level.

25. The redeye reduction system of claim 19, further including a boundary-adjusting module coupling said first and second target-determining modules to said image modifying module, said boundary-adjusting module dilating out said first and second target cohesive groups a predetermined number of times to encompass

surrounding non-candidate pixels, and comparing the color-based parameter of said encompassed non-candidate pixels to a second threshold value less than said first threshold value, all encompassed non-candidate pixels having a color-based parameter not less than said second threshold value being reassigned said first logic level and converted to candidate pixels.

26. The redeye reduction system of claim 25, wherein said first target cohesive group is dilated twice.

27. The redeye reduction system of claim 25, wherein said second threshold value is 0.9994 times said first threshold value.

28. The redeye reduction system of claim 19, wherein said first matrix generating module further generates a secondary pixel mask by comparing said color-based parameter of each of said pixels to a second threshold value less than said first threshold value, assigning said first logic level to pixels whose color-based parameter is not less than said second threshold value, and assigning said second logic level to pixels whose color-based parameter is less than said second threshold value, wherein said first logic level is a logic high and said second logic level is a logic low; and

a boundary-adjusting module coupling said first and second target-determining modules to said image modifying module, said boundary-adjusting module dilating out said first and second target cohesive groups a predetermined number of times to encompass surrounding non-candidate pixels, converting all encompassed non-candidate pixels to candidate pixels by reassigning them with said first logic level, correlating the dilated first and second target cohesive groups to corresponding pixels within said secondary pixel mask, and respectfully redefining said first and second target cohesive groups as the logical AND of each pixel within said dilated first and second target cohesive groups with its corresponding pixel in said secondary pixel mask.

29. The redeye reduction system of claim 28, wherein said first and second target cohesive groups are dilated twice.

30. The redeye reduction system of claim 29, wherein said second threshold value is 0.9994 times said first threshold value.

31. The redeye reduction system of claim 19, wherein said predefined color has a first brightness intensity, and wherein said image modifying module is further effective for changing the pixels of said digital image bordering said first and second image pixels to said common color and having a common second brightness intensity lower than said first brightness intensity.

32. The redeye reduction system of claim 19, wherein said first threshold value is defined as $Cr_{avg} + 0.2*(CR_{max}-Cr_{min})$ after the Red, Green, and Blue components of all pixels have been raised to the 1/3 power.

33. A method of redeye reduction for a digital image including at least one redeye region, said method comprising:

(a) a first matrix generating step for cycling through pixels of said digital image and comparing a color-based parameter of each of said pixels to a first threshold value, assigning a first logic level to pixels whose color-based parameter is not less than said first threshold value, and a second logic level to pixels whose color-based parameter is less than said first threshold value, wherein pixels assigned with said first logic level are defined as candidate pixels and pixels not assigned with said first logic level are defined as non-candidate pixels;

(b) a component-connecting step for identifying a plurality of cohesive groups of candidate pixels, and for identifying a first target cohesive group among said plurality of cohesive groups within which lies the candidate pixel having the color-based parameter of highest value among all of said plurality of cohesive groups, wherein said first target cohesive group is defined as a first redeye region;

(c) an image modifying step for identifying first image pixels within said digital image corresponding to said first target cohesive group, and for changing the color of said first image pixels to a common predetermined color.

34. The redeye reduction method of claim 33, further including a candidate-erosion step implemented in between steps (a) and (b), said candidate-erosion step including a first sub-step in which candidate pixels having less than three neighboring candidate pixels are converted to non-candidate pixels.

35. The redeye reduction method of claim 34, wherein said candidate-erosion step further includes a second sub-step following said first sub-step in which candidate pixels having less than two neighboring candidate pixels are converted to non-candidate pixels.

36. The redeye reduction method of claim 34, wherein said candidate-erosion method converts a candidate pixel to a non-candidate pixel by reassigning it with said second logic level.

37. The redeye reduction method of claim 33, wherein said component-connecting step further includes the generation of statistical data for each of said plurality of cohesive groups including a high parameter value indicating the highest color-based parameter value of its corresponding candidate pixels, an average parameter value indicating the average color-based parameter value of its corresponding candidate pixels, and a size parameter value indicating its size.

38. The redeye reduction method of claim 37, further including a second-target-determining step following said component-connecting step for identifying candidate cohesive groups among said plurality of cohesive groups characterized by having an average parameter value within a first range dependent on the average parameter value of said first target cohesive group and by having a size parameter value within a second range dependent on the size parameter value of said first target cohesive group,

wherein a determination is made that no second redeye region exists if no candidate cohesive groups are identified.

39. The redeye reduction method of claim 38, wherein said first value range is defined as 0.5 to 1.5 of the average parameter value of said first target cohesive group.

40. The redeye reduction method of claim 38, wherein said second value range is defined as 0.5 to 1.5 of the size parameter value of said first target cohesive group.

41. The redeye reduction method of claim 38, wherein said second-target-determining step further includes the calculating of the boundary square population value of each candidate cohesive group and identifying as a second target cohesive group the candidate cohesive group having the largest boundary square population value, said second target cohesive group being defined as a second redeye region.

42. The redeye reduction method of claim 41, wherein said image modifying step further includes identifying second image pixels within said digital image corresponding to said second target cohesive group, and changing the color of said second image pixels to said common predetermined color.

43. The redeye reduction method of claim 33, further including a boundary-adjusting step implemented in between steps (b) and (c), said boundary-adjusting step dilating out said first target cohesive group a predetermined number of times to encompass surrounding non-candidate pixels, and comparing the color-based parameter of said encompassed non-candidate pixels to a second threshold value less than said first threshold value, all encompassed non-candidate pixels having a color-based parameter not less than said second threshold value being reassigned said first logic level and thereby converted to candidate pixels.

44. The redeye reduction method of claim 43, wherein said boundary-adjusting steps dilates said first target cohesive group twice.

45. The redeye reduction method of claim 43, wherein said second threshold value is selected to be 0.9994 times said first threshold value.

46. The redeye reduction method of claim 33, further including:

a second matrix generating step for cycling through said pixels of said digital image and comparing said color-based parameter of each of said pixels to a second threshold value less than said first threshold value, assigning said first logic level to pixels whose color-based parameter is not less than said second threshold value, and assigning said second logic level to pixels whose color-based parameter is less than said second threshold value, wherein said first logic level is selected to be a logic high and said second logic level is selected to be a logic low; and

a boundary-adjusting step implemented in between steps (b) and (c), said boundary-adjusting module dilating out said first target cohesive group a predetermined number of times to encompass surrounding non-candidate pixels, converting all encompassed non-candidate pixels to candidate pixels by reassigning them with said first logic level, correlating the dilated first target cohesive group to corresponding pixels generated in said second matrix generating step, and redefining said first target cohesive group as the logical AND of each pixel within said dilated first target cohesive group with its corresponding pixel generated in said second matrix generating step.

47. The redeye reduction method of claim 46, wherein said first target cohesive group is dilated twice.

48. The redeye reduction method of claim 46, wherein said second threshold value is selected to be 0.9994 times said first threshold value.

49. The redeye reduction method of claim 33, wherein said predefined color has a first brightness intensity, and wherein said image modifying module is further effective for changing the pixels of said digital image bordering said first image pixels to said common color and having a common second brightness intensity lower than said first brightness intensity.

50. The redeye reduction method of claim 33, wherein said first threshold value is defined as Cr_{avg} + 0.2*(CR_{max}-Cr_{min}) after the Red, Green, and Blue values of all pixels have been raised to the 1/3 power.